



***An Interpretation of Global  
HCVF Toolkit for use in Ghana  
May 2006***

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# Table of Contents

1.	Introduction.....	4
2.	Potential and actual HCVF.....	5
3.	HCV 1 Globally regionally or nationally significant concentrations of biodiversity values.....	5
3.1.	HCV 1.1 Protected areas: .....	5
3.1.1.	Interpretation .....	5
3.1.2.	Identification .....	5
3.1.3.	Information sources .....	5
3.1.4.	Suggested management priorities for potential HCVF .....	6
3.2.	HCV 1.2 Forest that contain outstanding concentrations of threatened or endangered species .....	6
3.2.1.	Interpretation .....	6
3.2.2.	Identification .....	6
3.2.3.	Information sources .....	7
3.2.4.	Suggested management priorities for potential HCVF .....	8
4.	HCV 2 Globally regionally or nationally significant large landscape level forests 9	
4.1.1.	Interpretation .....	9
5.	HCV 3 Forest areas that are in or contain rare threatened and endangered ecosystems.....	10
5.1.1.	Interpretation .....	10
5.1.2.	Identification .....	11
5.1.3.	Information requirements .....	11
5.1.4.	Suggested management priorities for potential HCVF .....	12
6.	HCV 4 Forest areas that provide basic services of nature in critical situations 13	
6.1.	HCV 4.1 Forest critical to water catchments.....	13
6.1.1.	Interpretation .....	13
6.1.2.	Identification .....	13
6.1.3.	Sources of Information.....	13
6.1.4.	Suggested management priorities for potential HCVF .....	14
6.2.	HCV 4.2 Forests critical to erosion control.....	14
6.2.1.	Interpretation .....	14

6.2.2.	Identification .....	14
6.2.3.	Sources of information.....	14
6.2.4.	Suggested management priorities for potential HCVF .....	15
6.3.	HCV 4.3 Forests providing barriers to destructive fire.....	15
6.3.1.	Interpretation .....	15
6.3.2.	Identification .....	15
6.3.3.	Sources of information.....	16
6.3.4.	Suggested management priorities for potential HCVF .....	16
6.4.	HCV 4.4 Forests that play a critical role in local climate regulation .....	17
6.4.1.	Interpretation .....	17
6.4.2.	Identification .....	17
6.4.3.	Information sources .....	17
6.4.4.	Suggested management priorities for potential HCVF .....	17
7.	HCV 5 Forest areas fundamental to meeting basic needs of local communities	18
7.1.1.	Interpretation .....	18
7.1.2.	Identification .....	18
7.1.3.	Information sources .....	19
7.1.4.	Suggested management priorities for potential HCVF .....	20
8.	HCV 6 Forest areas critical to local communities traditional cultural identity	20
8.1.1.	Interpretation .....	20
8.1.2.	Identification .....	21
8.1.3.	Sources of information.....	22
8.1.4.	Suggested management priorities for potential HCVF .....	22
	Annex 1 Workshop Participants .....	23
	Annex 2 References and further reading.....	23
	Annex 3 The List of threatened fauna species in Ghana.....	25
	Annex 4 National Wildlife Conservation Regulations .....	27
	Annex 5 National Forest Conservation Regulation .....	28

# 1. Introduction

This document is a summary of the outputs from a multi-stakeholder workshop jointly organised by WWF West Africa Regional Programme Office and ProForest in Accra, Ghana, in May 2006. It is an interpretation of the concept of High Conservation Value Forest, as it is outlined in the High Conservation Value Forest (HCVF) Toolkit<sup>1</sup>.

All types of forests are unique and important and of conservation value but High Conservation Value Forests (HCVFs) are simply forests with outstanding significant values that are of critical importance, which needs to be appropriately managed or protected in order to maintain or enhance the identified values. Identifying areas of outstanding significant values is therefore an essential first step in developing appropriate management strategies for them.

Although the HCVF concept was initially developed for use in forest certification, it is nevertheless, gaining wide acceptance as a practical tool for both forest management and land use planning. Two major strengths of the concept are:

- The adaptation for use as a practical tool for integrating biodiversity conservation into forestry and other land use practices.
- The inclusion of social and environmental considerations into routine forest management operations even at the forest management unit level

Apart from these two major strengths which make the HCVF concept an extremely useful tool for all forest managers, the concept as outlined in this document is in line with Forest Stewardship Council (FSC) certification standards and the document thus should help forest managers interested in FSC certification in meeting the requirements of FSC Principle 9.

There are six types of High Conservation Values (see appendix 6 of this document). These values have been generically identified and defined through an international process supported by certification schemes, NGO, industry, investors, donors and some governments. The international process led to the development of a global toolkit which provides guidance for developing a national HCVF document.

A national interpretation of the HCVF toolkit is generally necessary because HCVs differ in regional and geographical contexts-their distribution also follows differences and uniqueness in ecosystems, species and landscapes. Therefore HCVF identified for Ghana for example, may be uniquely different from other countries in the sub-region and internationally.

WWF and ProForest believe that adoption and use of the HCVF concept in Ghana will help improve forest management practices in Ghana.

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<sup>1</sup> ProForest (2003) The High Conservation Value Forest Toolkit, Available from [www.proforest.net](http://www.proforest.net)

## 2. Potential and actual HCVF

Throughout this summary we refer to the difference between potential and actual HCVF, and the problem of scale in prescribing specific management priorities. For each High Conservation Value (HCV) we have identified areas that represent potential HCVF. These are the areas in which this HCV is likely to be found *and is likely to need specific management*. Such areas are usually entire forest reserves or groups of forest reserves, which may be under a variety of existing management regimes. For example, an individual forest reserve may contain areas for productive forestry, biodiversity conservation and community use. In these potential HCVF areas the decision as to whether additional specific management measures are required is a question for site level investigation by the forest manager.

Here, for each potential HCVF area, the generic management options are highlighted. Sources of guidance and further information are also indicated. It is the responsibility of the forest manager to consult with these experts and organisations to evaluate the existing management and protection with respect to the *maintenance of the conservation value* within an individual concession.

## 3. HCV 1 Globally regionally or nationally significant concentrations of biodiversity values

### 3.1. HCV 1.1 Protected areas:

#### 3.1.1. Interpretation

Protected areas are often, though not always, established to protect biodiversity. They are therefore included under HCV 1, as they frequently contain concentrations of biodiversity values. Protected areas are generally considered to be HCVF.

#### 3.1.2. Identification

There are a number of different types of protected area in Ghana. The following designations are considered HCVF.

- National Parks
- Resource Reserves
- Global Protection Reserves
- Globally Significant Biodiversity Areas
- Hill Sanctuaries
- Provenance Protection Areas
- Wildlife Sanctuaries

#### 3.1.3. Information sources

The main information sources include:

- Forest Protection in Ghana (IUCN publication)
- Manual of Procedures Section A (Strategic planning)
- Resource Management Support Centre (RMSC)
- Wildlife Division of the Forestry Commission

### **3.1.4. Suggested management priorities for potential HCVF**

Any of the above types of protected areas are already set aside from logging and other forms of disturbance and are not discussed further here.

## ***3.2. HCV 1.2 Forest that contain outstanding concentrations of threatened or endangered species***

### **3.2.1. Interpretation**

The interpretation of this HCV relates to the presence or likely presence of threatened or endangered plants and animals. For plants, the existing distribution of Globally Significant Biodiversity Areas (GSBAs) reflects a detailed investigation of the geographic distribution of plant biodiversity and centres of plant rarity and endemism (Hawthorne and Abu-Juam 1995). In some cases, these areas correspond very well to the distribution of bird biodiversity (i.e. establishment of Important Bird Areas).

In theory, GSBAs may protect wild fauna species since no logging is allowed in these areas. However, it is still not known how the GSBA system will contribute to the effective conservation of faunal biodiversity, as it focuses on the zonation of concession areas into use and non-use areas based mainly on botanical data. Hawthorne (2002) identified the need for a zoological survey process to complement the botanical surveys. Data is still lacking, but some information exists in the form of internal documents within organisations such as Conservation International (CI), Ghana Wildlife Society (GWS) and the Nature Conservancy Research Centre (NCRC) and there is a need for forest managers to be aware of these as part of developing strategies effective and adequate strategies for managing important concentrations of faunal biodiversity where these occur in timber concessions adjacent to GSBAs.

The workshop considered forest areas to be HCVF if they contain concentrations of species that are threatened globally (according to IUCN), or nationally listed as protected. This will necessitate specific management that focuses on the conservation requirements of the species in question.

There was considerable discussion relating to the type of species, the levels of threat and the level of concentration that would meet the criteria for this HCV. The consensus centred on the following definitions:

### **3.2.2. Identification**

A forest area will be considered HCVF if there is evidence to suggest:

- Presence of populations of at least 25%<sup>2</sup> of the forest dependent, red-listed species that are naturally resident in Ghana.
- Presence of a population of at least one nationally protected<sup>3</sup> species, whose survival in Ghana is critically dependent on the sustainable management of the population in question as integrity of the forest is not the only factor influencing the survival.

All forest dependent species listed on the IUCN red list, in all threat categories, are considered relevant to this HCV. Similarly all species listed as nationally protected under the National Wildlife Conservation Regulation will be considered if they are a) dependent on forest and b) are so restricted that the population in the individual forest reserve could be regarded as critical to the survival of the species in Ghana.

### 3.2.3. Information sources

Background information on the relevant species needs to be obtained from the IUCN Red List of Threatened Species 2006 and the National Wildlife Conservation Regulations (Annex 4). It is important that these sources of information are periodically checked for updates.

Individual GSBAs have been surveyed for fauna. Reports are available from the Institute of Renewable Natural Resources, Kwame Nkrumah University of Science & Technology, Kumasi<sup>4</sup>. John Oates has also conducted a study on primate occurrence in selected GSBAs but the report is yet to be finalised.

Forest reserves within the Upper Guinea Moist Forest Biome Biodiversity Hotspot have undergone rapid biodiversity assessments conducted by Conservation International. Reports are available for Bia Tano, Tano nimri, Krokosua Hills and Draw River forest reserves (contact: Conservation International-Ghana)

Birdlife International have surveyed a number of forest reserves in Ghana and designated several Important Bird Areas (IBAs)<sup>5</sup>, on the basis of the presence of certain priority species. In many cases these overlap with existing protected areas including GSBAs. Information on the IBA areas and the distribution of threatened bird species is available from Ghana Wildlife Society (contact: Augustus Asamoah, Ghana Wildlife Society).

In some cases, these sources will be sufficient to indicate forest reserves which exceed the threshold of the number of red-listed species and therefore should be considered as HCVF. Where the information pertains to a protected area or GSBA that is *contiguous* with, or *within*, the forest reserve in question, the commercial-use area of the reserve will be considered as potential HCVF. Similarly, where information suggests a neighbouring forest reserve is HCVF under this criterion, the

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<sup>2</sup> The group suggested 25% as a suitable threshold, but this will need to be determined through some quantitative analysis of the species that are likely to be present

<sup>3</sup> National Wildlife Conservation Regulation listed species: see Annex 3

<sup>4</sup> Final draft report of the faunal survey within GSBAs. Inst Nat Res. Univ Kumasi

<sup>5</sup> Refer to [www.birdlife.org](http://www.birdlife.org) for useful data

precautionary principle should be employed and the forest reserve in question should also be treated as potential HCVF.

Where information is lacking or inconclusive, it will be the responsibility of the forest manager to carry out a biodiversity survey. The forest manager may wish to seek external assistance for this where the expertise does not occur internally. The biodiversity survey should seek to demonstrate the presence/absence of species on the IUCN red list, or the National Wildlife Conservation Regulation.

### **3.2.4. Suggested management priorities for potential HCVF**

Management of this HCV will be highly dependent on the specific biodiversity aspects identified in the forest reserve in question. There is limited scope for generic management recommendations. Nevertheless the broad headings that should be considered are the following:

- Avoidance of habitat loss/conversion
- Control of hunting
- Zonation and set aside areas
- Connectivity and patchiness
- Species specific action plans

#### **Avoidance of habitat loss/conversion:**

Forest ecosystems can recover from disturbance, and provided they are not subjected to chronic over exploitation for timber, managed forests are capable of supporting most forest animal species. However, once the forest habitat is replaced with agriculture, agroforestry systems (e.g. Taungya), cash crops (e.g. cocoa) or monoculture plantations, most or all of its capacity to support forest dependent species such as Dina Monkey, White-Collared Mangabey, and the Red Colobus is lost. Here we define this as forest conversion. Forest conversion will not be permitted in areas identified as HCVF under this HCV.

#### **Control of Hunting:**

Uncontrolled hunting is the major factor affecting faunal biodiversity in Ghana's remaining forest reserves. While some local people may be dependent on hunting for basic subsistence, the existing pressure from commercial hunting exceeds sustainable harvest levels, (at least for large bodied and forest dependent species such as the Bushbuck, the Black and White Colobus, the Black Duiker, Maxwell Duiker and the Mona Monkey. The monitoring and control of hunting activities is a vital component of management in all areas identified as HCVF under this HCV. Information on suggested monitoring protocols is available from Zoological Society of London (Bjorn Schulte Herbruggen ([bjorn.schulte-herbruggen@zsl.org](mailto:bjorn.schulte-herbruggen@zsl.org))) OR Wildlife Division of the Forestry Commission

#### **Zonation and set-aside areas:**

In some situation, it will be important to zone or set aside specific areas of significant concentration of biodiversity in order to maintain their values. This will need explicit consideration in the management plan and consultation with experts. Managers will need to answer the question: to what extent can the conservation of

this value be assured through the maintenance of set aside areas? In some groups of species this may be an appropriate strategy (e.g. for species of limited mobility, or that tend to be localised in particular areas or habitats). In other cases a more concession wide approach will be necessary and management should focus on the maintenance of favourable conditions across the entire concession (see below).

#### **Connectivity and patchiness:**

The forest manager will need to consider maintaining connectivity at two levels. First, between the FMU and neighbouring intact forest patches such as reserves, parks and GSBA areas except where these are separated from each other by active farmlands. Second within *the operational area of the FMU*, e.g. between provenance protection areas and other set asides. Corridors of undisturbed forest (such as those along the edges of forest reserves for the purpose of fire protection that are recommended by Hawthorne and Abu-Juam (1995)) may be appropriate. There are other ways to enhance connectivity for wildlife, such as increasing the density of discrete patches of forest, even if these patches are not physically connected. This approach may be suitable for some fauna (e.g. some birds) but less so for others. The advice of wildlife biologists must be sought.

#### **Strategic conservation plans and Species-specific action plans:**

The production of species-specific plans will provide forest managers with guidance. This is currently under way for elephants and Primates<sup>6</sup> (WD). A species action plan for White-Necked Picathartes (*Picathartes sp*) is available from GWS. Further specific guidance on the management of individual priority species is available from WD and GWS. However, it is important to note that these species-specific but nevertheless general prescriptions require adaptation to local characteristics that may vary between forest reserves.

## **4. HCV 2 Globally regionally or nationally significant large landscape level forests**

### **4.1.1. Interpretation**

The forest area in Ghana has been dramatically reduced from its original state since the forest reserve system was established in 1927. Today, those reserves that were originally designated as protected forest are the only forest areas that remain in Ghana. With the exception of the National Parks, Hill Sanctuaries and Globally Significant Biodiversity Areas (GSBAs) most have had a long history of management and intervention. Some are extensively degraded and others are in the process of conversion to plantations. Furthermore, while some individual reserves are reasonably large (Bia Tawya forest reserve at Juaboso is 67,900 ha), most reserves cannot be considered as uniform blocks of intact forest, due to fragmentation within reserves. On a landscape level, this pattern is matched by fragmentation *between*

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<sup>6</sup> Source: Wildlife Division of the Forestry Commission

reserves, most of which are separated by intensively managed agricultural land and cocoa plantations.

Greenpeace, together with the Rainforest Action Network and World Resources International have created a global database of Intact Forest Landscapes (IFL) from analysis of satellite imagery<sup>7</sup>. They define an IFL as an area of at least 50,000 ha of forest that is un-fragmented by roads or other forms of man-made disturbance. The global database of IFL does not identify any areas of forest in Ghana as meeting the criteria.

Ideally, the size threshold of a large landscape level forest should correspond to its ability to sustain its specific assemblage of 'viable populations of most if not all naturally occurring species in natural patterns of distribution and abundance'. While it will always be difficult to estimate this figure for real forest landscapes, several HCV interpretation processes have considered 50 000 hectares as a shorthand 'generic' size threshold in the absence of more detailed information. This approach was adopted by the Ghana workshop as well. As a result, areas representing this specific HCV were not considered to be present in Ghana.

## 5. HCV 3 Forest areas that are in or contain rare threatened and endangered ecosystems

### 5.1.1. Interpretation

Under this HCV, forest areas that are in or contain rare, threatened or endangered ecosystems will be considered HCVF.

In defining 'ecosystems' the group considered both broad forest types (as defined by Hall and Swaine (1981) and smaller 'habitat types' that can occur within a forest type.

The group considered forest and habitat types that:

- a) are naturally rare
- b) have been dramatically reduced from their original extent due to the activities of man
- c) are so threatened by existing and planned activities that they should be considered threatened/endangered

The group considered two issues: **forest loss**, meaning conversion of forest to non-forest, and **forest degradation**, meaning the erosion of forest quality and its ability to support biodiversity. The results of the discussion on levels of threat reflect a combination of both quantity and quality of forest. Hence a forest type might be considered as HCVF if it has been either dramatically reduced from its original extent, or is so degraded by the activities of man that the forest ecosystem is threatened regardless if the extent of the land area designated as 'forest'. It should be noted that no quantitative analysis has been conducted to support these classifications, and that the designations are based on the consensus opinion of the

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<sup>7</sup> Available from [www.intactforests.org/](http://www.intactforests.org/) .

group. It is recommended that quantitative and qualitative analyses are carried out to assess the extent of forest loss. See Information requirements, below.

### 5.1.2. Identification

The group considered the various categories in the discussion and classified the forest and habitat types as shown in the following tables.

Table1. Forest types

Forest type	Naturally rare	Reduced in extent or quality	Threatened by current and future changes
Wet evergreen			
Southern Marginal			
Mangrove			
Dry Semi-Deciduous			
Moist Semi-Deciduous			

Table2. Habitat types

Habitat type	Naturally rare	Reduced in extent	Threatened by current and future changes
Upland marshes and upland wetlands			
Savannah gallery forest			
Lowland swamps			
Coastal Savannah*			

\* Clarification/description of this habitat type required

The workshop proposed forest areas within the forest types listed in Table 1 as candidates for HCV 3. All forest reserves in these areas are therefore considered as potential HCVF. Management prescriptions for these areas will depend on a case-by-case evaluation of the degree of current loss or degradation of the forest type.

In addition, all of the habitat types listed in Table 2 will be considered HCV 3 areas.

### 5.1.3. Information requirements

It will be necessary to confirm the consensus view of the group through the analysis of available information and existing data. In particular, attention is drawn to the remote sensing information available from RMSC and The Environmental Protection Agency (EPA). A forthcoming report on forest type trends and changes based on an analysis of satellite imagery is shortly to be available (contact Emmanuel Tachie-Obeng, EPA: [eobeng@epa.org](mailto:eobeng@epa.org) )

#### **5.1.4. Suggested management priorities for potential HCVF**

Forest types identified here are selected because they have been reduced in extent or quality by the activities of man, and therefore need to be the focus of special management. The areas identified are broad categories (e.g. forest types) that are already under a range of management scenarios including both protection and commercial timber harvesting. It is therefore not possible to make specific management prescriptions for all cases.

In management units within areas identified as potential HCVF, there is a need for the forest manager to evaluate the situation with respect to the *maintenance of this conservation value*: i.e. the persistence of the forest ecosystem and its associated biodiversity. The designation as potential HCVF therefore, does not automatically rule out the continuation of commercial timber harvesting. Specific site level management will depend on site level conditions. However the forest manager is responsible for ensuring that the following issues are explicitly considered:

- Re-evaluation of the need for convalescence areas
- The need for complete protection from further intervention
- The need for restoration with appropriate native species

##### **Re-evaluation of the need for convalescence areas**

The Forestry Commission's existing Manual of Procedures (MOP) outlines the means for the creation of convalescence areas in managed forest reserves. These requirements include an assessment of forest condition and a requirement for the complete cessation of logging activity for a period of 40 years in areas that are severely degraded (see MoP section A2.6 convalescence forest). There is an immediate need to revisit the existing designation of convalescence areas in all forest types identified as potential HCVF.

##### **Complete protection**

The habitat types identified in Table 2 should be set aside for complete protection. In many cases they occur within existing protected areas, where the responsibility for their protection rest with the Forestry Commission. However, there may be incidences where these habitat types occur within production forest areas. Here it is the explicit responsibility of the forest management company (concessionaire) to identify these habitats within their concession, to demarcate them and to ensure they are completely protected from all commercial harvesting activity.

##### **Restoration with appropriate native species**

There are areas within forest reserves in these potential HCVF areas that are so severely degraded that the ability of the forest to recover through natural regeneration is called into question. There is a need to carry out intensive forest restoration through tree planting and maintenance.

This restoration should aim to recreate threatened High Conservation Values, usually through active regeneration of a mixture of native species, including both pioneer and climax trees, with a focus on the re-establishment of an ecologically functional forest ecosystem. 'Restoration' through the establishment of monoculture tree plantations is not considered appropriate in these areas.

## 6. HCV 4 Forest areas that provide basic services of nature in critical situations

### 6.1. HCV 4.1 Forest critical to water catchments

#### 6.1.1. Interpretation

In certain areas of Ghana (especially areas lying within the moist and semi deciduous ecozones), forest areas provide a function in regulating the flow of water within an entire catchment. This service can be considered critical when people are dependent on the guarantee of water for drinking or irrigation, or where the regularising function guarantees the existence of fishing grounds and the prevention of siltation which would have damaging consequences on water reservoirs and basin capacity.

However, where forest reserves are small in relation to the major river catchments, individual forests are unlikely to provide this service across the entire catchments. They are more likely to have this effect at a local scale (i.e. the sub-catchment level), i.e. if the forest reserve *covers the entire sub-catchment* of a stream that is providing drinking or irrigation water to a village or villages.

#### 6.1.2. Identification

This HCV is thought likely to be present in some areas within the Dry semi-deciduous forest zone and in hilly areas dominated by the Upland evergreen forest type. Specific areas include Afram, Atewa and Bia headwater as well as all other forest reserves designated for protecting river head waters.

A forest area may also be considered as HCVF if it covers the entire sub-catchment of a stream on which a community (or communities) depend for drinking water, irrigation water or fishing, *and* the forest provides a function in regulating the quality and quantity of water on which these functions depend.

Indicators that this HCV is present are the following:

- Communities adjacent to forest reserves that do not have access to boreholes for drinking water and depend exclusively on the river in the catchment area
- Communities that are adjacent to forest reserves and that are in low lying areas known to be susceptible to flooding
- Communities adjacent to forest reserves that are dependent on river fish as a major source of protein

#### 6.1.3. Sources of Information

- Water Research Institute
- Water Resources Commission, Ghana
- Water Resources of Ghana
- Architectural Department for Engineering Services

## **6.1.4. Suggested management priorities for potential HCVF**

Where this HCV occurs, no action should be taken by the forest manager that may affect the regularity, quality or quantity of stream flow. Mandatory riparian protection areas must be respected; forest managers must follow specific prescriptions for the protection of riparian vegetation and watershed management in conformity with the Ghana Logging Manual and Manual of Procedures A (section relating to protection and zonation of riparian vegetation). Steep slopes (above 30% slope) should not be harvested under any circumstances.

Further to these measures, it is the responsibility of the forest manager to demonstrate that operations do not/will not affect these aspects.

## **6.2. *HCV 4.2 Forests critical to erosion control***

### **6.2.1. Interpretation**

All forests may be important for this purpose, but when normal best forest management practices are sufficient for erosion protection, they will not be considered HCVF. Instead a forest will be considered HCVF if it is essential to the protection against severe erosion or terrain instability in areas where the consequences of these are severe.

### **6.2.2. Identification**

Forest that plays a role in landslide prevention (hill sanctuaries), or that are considered Catchment Area Forests (e.g. Afram, Atewa, Birimso, Owabi, Sekondi and Bia Headwater forests) will be HCVF.

Forest shelter belts that prevent serious wind erosion where this would drastically affect local agriculture will also be considered HCVF. A specific example includes the Bia shelter belt, a strategically designated NW forest strip for sustaining local cocoa production.

All forest adjacent to reservoirs, water works or hydro power systems will be considered potential HCVF. Where commercial operations are considered, it is the responsibility of the forest manager to demonstrate that operations in such forests will not increase the risk of severe erosion.

### **6.2.3. Sources of information**

The main sources of information include:

- Forest management plans (available at RMSC).
- Detailed topographic data available from RMSC

Practical field observations have suggested that the status and functions of catchments forests in Ghana are being threatened by increasing population of immigrants and settlers in forest fringe communities (see Box 1 below). Therefore there is to investigate recent demographic changes and their current and potential impacts on catchments forest ecosystems as a basis for developing future management priorities.

### **Box 1 Information gap regarding the functions of catchment area forests**

Recent practical field observation indicate that local population of natives, settlers and immigrant communities residing at the fringes of the catchment area forest reserves seem to have increased significantly. If this is the case their livelihood activities and settlement patterns may have significant impact on the ecosystem quality of the catchment forests and their conservation values. *Therefore up to date information on recent demographic changes and their current and potential impacts on catchment forest ecosystems is vital..*

## **6.2.4. Suggested management priorities for potential HCVF**

This HCVF requires special protection. Areas that meet this criterion must remain under continuous, uneven-aged forest cover, and site-disturbing activities such as mining or road building should not be allowed. Normally this means that they should be exempt from commercial exploitation.

Instead the focus of management should be restoration, though the re-establishment of natural forest. This restoration should be made using a mixture of native species, including both pioneer and climax trees, with a focus on the re-establishment of an ecologically functional forest ecosystem. 'Restoration' through the establishment of monoculture tree plantations is not considered appropriate in these areas.

## **6.3. HCV 4.3 Forests providing barriers to destructive fire**

### **6.3.1. Interpretation**

This element will include those few forests that provide natural barriers to fire where uncontrolled spread of fire could pose a serious risk to human life and property, economic activity, or to threatened ecosystems or species. It is not intended to include forests where fire is a natural or normal part of forest ecosystem process.

In Ghana, several areas are already designated as shelterbelt forest reserves, all of which will play a role in mitigating destructive fire. However, due to changes in land use and the extent and quality of the forest reserves in general, there may be areas within other forest reserves that now provide this function.

### **6.3.2. Identification**

All shelter belt forest reserves (e.g. Bia forest reserve) will be considered potential HCVF. Intact natural riparian/ gallery forest in the savannah zone (e.g. Red Volta East Forest Reserve) will also be considered potential HCVF.

Parts of forest reserves along road margins may be considered HCVF where there is

- evidence of a fire risk from the activities of man, and

- the likelihood that they will act as natural barriers to fire spreading into the reserve towards an existing protected area, or another area designated as HCVF according to these criteria.

In areas that have been subjected to increasing levels of anthropogenic fires in recent years, any forest areas that may prevent fire spreading into protected areas (including GSBAs) will be considered HCVF.

### 6.3.3.Sources of information

The main sources of information include:

- Bushfire trend reports and maps (available from RMSC)
- State of the Environment report Ghana (available from EPA)
- National Wildfire Management plan (available from RMSC and FC)
- Draft Wildfire Policy (available from RMSC)
- Manual of Procedures G (wildfire management in the Savannah zone)
- Anti Bushfire Law (available from Min of Lands and Forests/FC)
- ITTO reports on bushfire prevention and management in Ghana (available from MLF)

#### **Box 2 Information gap regarding shelter belt forests**

*Information is needed on the current status of the shelter belts and their continuous effectiveness in acting as fire barriers. This information will be useful in determining modifications required to strengthen the application of the shelter belt system as an effective fire control mechanism. Areas needed to be study include critical numbers, size, distribution and layout.*

### 6.3.4.Suggested management priorities for potential HCVF

All forest areas identified as potential HCVF (barriers to destructive fire) should be protected from logging operations. These forests must be maintained in a reasonably intact condition and in a semi-green state to ensure that they remain resistant to fire. Forest managers should ensure that operational planning activities are consistent with the MoP A (fire buffer zones protection) and are designed to minimise wilful damage to these forests.

Where these forests contain important Non-timber Forest Products (NTFPs), forest managers in consultation with local communities should allow harvesting provided that it is non-destructive to the forest<sup>8</sup>.

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<sup>8</sup> It is suggested that no harvesting of wood or timber products should be allowed under any circumstances.

## **6.4. HCV 4.4 Forests that play a critical role in local climate regulation**

### **6.4.1. Interpretation**

All forests play some role in regulating the local climate. These effects are often marginal and difficult to measure. However, there may be instances where forest loss or severe degradation would result in catastrophic changes to local climatic conditions, such as dramatically increased fire risk, or exposure to drying winds that would compromise productive agriculture.

As stated above, in Ghana, several areas are already designated as shelter belt forest reserves, all of which will play some role in regulating local climate. However, due to changes in land use and the extent and quality of the forest reserves in general, there may be additional areas within other forest reserves that now provide this function.

### **6.4.2. Identification**

Forest areas in the transition zone between the high forest zone and the dry savannah, that provide protection against the NE trade winds and/or 'Harmattan' dry winds will be considered potential HCVF. These forest areas may provide a stabilising effect on local temperatures that prevents extreme dry conditions and/or prevents wildfire outbreaks.

Shelterbelt forest such as Bia, Tano, Asukese and Goa in the transition zone will be considered HCVF.

Additional forest areas in the transitional zone will need to be evaluated on a case-by-case basis to establish whether they provide this function in a situation that is critical.

### **6.4.3. Information sources**

The main information sources include:

- Forest management plans (available from RMSC)
- Production Working Cycle reports (available from RMSC)

### **6.4.4. Suggested management priorities for potential HCVF**

HCVFs in the transition zone must remain under continuous forest cover in order to continue to provide 'cushioning effects' against adverse conditions from NE trade and the dry Harmattan winds. Restoration of these areas with native species should be a priority of management.

In commercial forest areas that adjoin these HCVFs, a buffer zone should be established along the margin between the HCVF and the commercial forest concession. No harvesting should take place within this buffer.

Where local people make use of fuel wood and/ or important NTFPs are to be collected in these areas, the forest manager must evaluate the risk that these activities pose to maintaining the value. Where timber products are harvested by

local people, alternatives should be sought. In consultation with local communities, managers should determine harvesting levels and practices (including the use of local byelaws) that ensure non-destructive uses to the forests.

## **7. HCV 5 Forest areas fundamental to meeting basic needs of local communities**

### **7.1.1. Interpretation**

Local communities are established around the fringes of most if not all forest reserves in Ghana. In some cases these forest fringe communities will depend on the forest reserve for their basic needs including food, materials, spices and medicines. In cases where the community or a part of the community is *entirely reliant* on the forest as the sole source of that commodity, the forest may be considered HCVF. That is, if the forest provides a product or service, which the local people cannot obtain from any other source, *and* that product or service is critical to their livelihood, the forest will be HCVF. Hence, forests are considered HCVF where the livelihood needs of the local communities are inextricably linked with the forest reserve and there are no affordable alternatives or complementary sources providing these needs.

### **7.1.2. Identification**

A forest will be considered HCVF when it is the source of a basic need in a situation where the majority of the local people or the poorest population among the local people have no realistic alternative. The group considered the basic needs most likely to occur are the following:

- Food (e.g. bushmeat) where this is a fundamental protein component of diet;
- NTFP harvesting (e.g. bushmeat and rattan) where this provides essential household income;
- Medicinal materials in the absence or lack of access to local clinics, or in cases where traditional medicine is the only affordable option;
- Building materials (e.g. roof thatches, wood etc);
- Other basic household needs such as fuel wood (for heating) or pestle (for preparing staple food forming the main diet of the community) where there are no affordable alternatives.

Where a socio economic survey has been completed as part of the forest reserve management planning process, much of the information on the activities of local people will be known. The forest manager should consult the socio-economic survey report. Where the recommendations of the socio-economic survey report have been incorporated into the management plan, there may not be the need for further investigation by the forest manager.

However, there may be instances where the report is either out of date or insufficiently rigorous for the forest manager to be sure if this HCV exists. In the

case of any doubt the forest manager will need to conduct a new social survey of any communities that are likely to have basic dependencies on the forest

#### **Indicators of potential HCVF:**

There are a number of situations in which this HCV may be found. In general communities with basic dependencies on the forest are likely to suffer extreme poverty levels, and there will be a lack of significant economic activities (other than that provided by the forest such as NTFP harvesting and commercial hunting). This situation may be particularly common with immigrant settlers, and very remote rural settlements. Some indicators of dependency could be the following:

- Long distance between the village and the nearest larger settlement/town;
- Absence of clinic (or long distance to the nearest clinic) or health post;
- Poor quality of access road/track to the village, indicating that transport is rare/absent;
- Majority of houses built without modern materials and using forest products;
- Village names indicate immigrant communities.

In situations where a village or villages in the locality of the forest reserve are considered likely to rely on the forest for at least one of their basic needs, the forest manager must determine if measures outlined in the existing management plan are sufficient to safeguard the high conservation value.

Where there is doubt, a survey should be carried out by an independent expert to determine the extent to which the above basic needs are met from the forest. Where one or more of the basic needs is met from the forest and there is no realistic or affordable alternative, the forest or part of the forest will be HCVF.

### **7.1.3. Information sources**

In Ghana, although these HCVs are commonly associated with production or protection forest reserves their identification depends on local traditional knowledge/ skill which expert scientist or forest managers do not normally have. It is therefore important that experts work in collaboration with locals who are known within their communities to possess adequate traditional knowledge as part of the process for identification of these values and their corresponding HCVF areas.

The main sources of written information include:

- Forest management plans
- Socio-economic survey report (where these are complete and up to date)
- Manual of Procedures (available from RMSC)
- Social NGOs including: Friends of the Earth, GACON, RUDEYA, CARE, CONDEF
- Protected Area Development Project (PADP) phase 1 reports (available from the Wildlife Division of the Forestry Commission)

### 7.1.4. Suggested management priorities for potential HCVF

Where the HCVF occurs in production forest, forest managers will need to adopt a management regime that ensures that local people can either continue to meet their basic needs from the forest, or they are provided with an appropriate equivalent product or service at no additional cost to themselves.

The manager will need to conduct an **assessment of threats** to the value, which specifically considers the impacts of current and planned management activities on the yields of products collected/harvested by local people.

The forest manager will also have to decide whether current collection/harvesting activities by local people are sustainable (e.g. using known and proven traditional management practices for sustainable use), or are in fact leading to the depletion of the resource. If current practices are un-sustainable the forest manager should actively engage with local people to bring about a change in these activities and ensure sustainable utilisation. In either case, where this HCV occurs, management of the area will involve a combination of delineation of community use areas and management of offtake rates.

**Dedicated community use areas:** These may or may not be subjected to commercial logging activity, depending on the analysis of threats (see above), but will need to be agreed in consultation with the local community. They should be delineated on maps and on the ground in such a way that both operational staff and local people are aware of the distinction between different zones.

**Management of offtake:** This will require active and regular monitoring of the levels of use by members of the community. It will involve regular assessments of the condition of the forest and its ability to continue to provide the resource in question, and the extent of the pressure being exerted on the resource by the local people. It should be able to detect changes in the availability of a resource in time to change the pattern of use i.e. before a critical crisis point is reached and the resource becomes severely depleted.

Some simple examples of this will include gathering information on:

- Distance travelled to find the specific resource;
- Time spent searching for the specific resource;
- Number of trips that have been successful/unsuccessful.

## 8. HCV 6 Forest areas critical to local communities' traditional cultural identity

### 8.1.1. Interpretation

In Ghana forests often have deep spiritual and cultural significance for forest fringe communities. In particular forests can play crucial roles in *defining* their culture and identity. Therefore, in many forest fringe communities cultural identity, traditional beliefs and norms (practices such as pouring libations in saying prayers to forest

gods; festivals and rituals; folklores and oral history; burial of stools and skins) are all associated with the existence of the forests.

Here, a forest is considered HCVF if it defines the cultural identity of the local people such that its absence will lead to 'cultural erosion'.

### 8.1.2. Identification

As for HCV 5, where a socio economic survey has been completed as part of the forest reserve management planning process, much of the information on the cultural identity and activities of local people will be known. The forest manager should consult the socio-economic survey report. Where the recommendations of the socio-economic survey report have been incorporated into the management plan, there may not be the need for further investigation by the forest manager.

However, while generally well understood and managed, the cultural aspects of local peoples' links to the forest may not have been considered in sufficient depth by some socio-economic surveys. It will be necessary for the forest manager to establish that local peoples' cultural linkages have been adequately safeguarded in the forest reserve in question. ***Consultation with the local communities to investigate this will be essential.*** It may be necessary to conduct a more detailed investigation.

#### Indicators of potential HCVF:

From preliminary consultation and investigation it will be possible to establish whether a) there are cultural activities linked to the forest, and b) if these are likely to be central to the group's cultural identity

The main characteristics of forests associated with the cultural identity of local people include:

- Traditional burial grounds for chiefs located in forest areas;
- Ritual grounds for traditional religious worship of shrines and fetish gods located in forest areas;
- Taboo days when entry to a forest area is forbidden;
- No-go areas of forest, possibly overseen by a traditional/religious leader;
- Forest animals hunted for festival occasions e.g. Aboakyir festival;
- Forest provides only habitat for cultural totems e.g. Kotoko, Oyoko tribes;
- Significance for stool or skin identity e.g., the term 'Kwaebibrim' -an appellation of the Okyenhene of Akyem Abuakwa, Eastern Region was derived from the existence of the Atewa forest.

In Ghana, these HCVFs are normally associated with dense/ intact forest and are often referred to as **sacred groves**. In most cases sacred groves are described by oral tradition or historical accounts which describe stories or mysteries associated with the forest and the worship of a forest deity. Reverence for the forest deity is an important part of cultural beliefs, norms, practices and identity of the local people.

### **8.1.3. Sources of information**

As these cultural beliefs and traditions are unique to each forest area, it is necessary to involve local people in identifying this HCV. In some forest communities there are priests or traditional authorities in charge of the forest; where they exist, these individuals **must** be consulted for the identification of the HCVF.

The main sources of written information include:

- Socio-cultural survey reports (as part of forest management plans)
- Publications on cultural festivals associated with forests e.g. Aboakyir festival
- Ministry of tourism
- Totems in Ghana (Conservation International publications)
- Sacred groves of Ghana (Tufour *et al* 1992)

### **8.1.4. Suggested management priorities for potential HCVF**

As for HCV 5 the forest manager needs to consider the threats posed by existing and planned management activities to any critical cultural sites or practices that are associated with the forest reserve. This will necessarily involve consultation with local religious and traditional leaders. Many cultural sites that fit this description will already have been identified and set aside from forest operations. However other aspects of cultural use/identity may be widespread through the forest reserve (e.g. collection or hunting of certain products). Their management will depend on an assessment of the threat posed by logging activity and an assessment of the sustainability of these practices themselves.

Management is likely to involve a combination of delineation of no-go areas, and the harmonising of certain aspects of commercial forestry with local peoples' traditional calendars.

Forest managers should provide unlimited access to local communities for observance of their rituals and traditions.

Where there are traditional norms such as taboo days where logging or any management activity is banned, forest managers should respect and obey these traditional practices.

## Annex 1 Workshop Participants

Name	Organisation
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## Annex 2 References and further reading

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### Annex 3 The List of threatened fauna species in Ghana

Scientific name	Common Names	Local name	Status
<i>Alcelaphus buselaphus</i>	Common Hartebeest (E)		LR
<i>Anomalurus pelii</i>	Pel's Flying Squirrel (E)		NT
<i>Cephalophus dorsalis</i>	Bay Duiker (E)		LR
<i>Cephalophus maxwellii</i>	Maxwell's Duiker (E)		LR
<i>Cephalophus niger</i>	Black Duiker (E)		LR
<i>Cephalophus ogilbyi</i>	Ogilby's Duiker (E)		LR
<i>Cephalophus rufilatus</i>	Red-Flanked Duiker (E)		LR
<i>Cephalophus silvicultor</i>	Yellow-Backed Duiker (E)		LR
<i>Cercocebus atys</i>	Red-Capped Monkey (E) Sooty Mangabey (E)		LR
<i>Cercocebus torquatus</i>	Collared Mangabey (E) Red-Capped Mangabey (E) Sooty Mangabey (E) White-Collared Mangabey (E)		LR
<i>Cercopithecus diana</i>	Diana Guenon (E) Diana Monkey (E)		EN
<i>Chaerephon aloysiisabaudiae</i>	Duke Of Abruzzi's Free-Tailed Bat (E)		NT
<i>Chaerephon chapini</i>	Chapin's Free-Tailed Bat (E)		DD
<i>Chaerephon russata</i>	Russet Free-Tailed Bat (E)		NT
<i>Colobus polykomos</i>	King Colobus (E) Ursine Black-And-White Colobus (E) Western Black-And-White Colobus (E) Colobe Blanc Et Noir D'afrique Occidentale (F)		LR
<i>Colobus vellerosus</i>	Geoffroy's Black-And-White Colobus (E) White-Thighed Black-And-White Colobus (E)		VU
<i>Crocidura grandiceps</i>	Large-Headed Shrew (E)		NT
<i>Crocuta crocuta</i>	Spotted Hyaena (E)		LR
<i>Damaliscus lunatus</i>	Tsessebe (E) Damalisque (F) Hirola (F) Korrigum (F) Sassaby (F) Topi (F)		LR
<i>Epixerus ebii</i>	Ebian's Palm Squirrel (E) Temminck's Giant Squirrel (E) Western Palm Squirrel (E) Écureuil D'ebi (F) Écureuil Des Palmiers (F) Écureuil Palmiste (F) Ardilla De Palmera (S)		DD

Scientific name	Common Names	Local name	Status
<i>Funisciurus leucogenys</i>	Red-Cheeked Rope Squirrel (E)		DD
<i>Funisciurus substriatus</i>	Kintampo Rope Squirrel (E)		DD
<i>Gazella rufifrons</i>	Red-Fronted Gazelle (E)		VU
<i>Genetta johnstoni</i>	Johnston's Genet (E)		DD
<i>Glauconycteris beatrix</i>	Beatrix's Bat (E)		NT
<i>Glauconycteris superba</i>	Pied Bat (E)		VU
<i>Graphiurus crassicaudatus</i>	Jentink's Dormouse (E)		DD
<i>Heliosciurus punctatus</i>	Small Sun Squirrel (E)		DD
<i>Hippopotamus amphibius</i>	Common Hippopotamus (E)		VU
<i>Hipposideros abae</i>	Aba Roundleaf Bat (E)		NT
<i>Hipposideros fuliginosus</i>	Sooty Roundleaf Bat (E)		NT
<i>Hipposideros jonesi</i>	Jones's Roundleaf Bat (E)		NT
<i>Hippotragus equinus</i>	Roan Antelope (E)		LR
<i>Hyaena hyaena</i>	Striped Hyaena (E) Hyène Rayée (F)		LR
<i>Hyemoschus aquaticus</i>	Water Chevrotain (E)		DD
<i>Hylomyscus baeri</i>	Baer's Hylomyscus (E) Baer's Wood Mouse (E)		EN
<i>Kerivoula phalaena</i>	Spurrell's Woolly Bat (E)		NT
<i>Kobus ellipsiprymnus</i>	Waterbuck (E)		LR
<i>Kobus kob</i>	Kob (E)		LR
<i>Leimacomys buettneri</i>	Groove-Toothed Forest Mouse (E)		DD
<i>Lemniscomys linulus</i>	Senegal Lemniscomys		DD
<i>Loxodonta africana</i>	African Elephant (E) Elefante Africano (S)		VU
<i>Lycaon pictus</i>	African Wild Dog (E)		EN
<i>Mops demonstrator</i>	Mongalla Free-Tailed Bat (E)		NT
<i>Mops petersoni</i>	Peterson's Free-Tailed Bat (E)		VU
<i>Mops trevori</i>	Trevor's Free-Tailed Bat (E)		VU
<i>Mungos gambianus</i>	Gambian Mongoose (E)		DD
<i>Neoromicia brunneus</i>	Dark-Brown Serotine (E)		NT
<i>Neotragus pygmaeus</i>	Royal Antelope (E)		LR
<i>Nycteris intermedia</i>	Intermediate Slit-Faced Bat (E)		NT
<i>Oenomys ornatus</i>	Ghana Rufous-Nosed Rat (E)		DD

Scientific name	Common Names	Local name	Status
Otomops martiensseni	Large-Eared Free-Tailed Bat (E)		NT
Ourebia ourebi	Oribi (E)		LR
Pan troglodytes	Chimpanzee (E)		EN
Panthera leo	African Lion (E)		VU
Pipistrellus inexpectatus	Aellen's Pipistrelle (E)		DD
Procolobus badius	Red Colobus (E)		EN
Procolobus verus	Olive Colobus (E)		LR
Profelis aurata	African Golden Cat (E)		VU
Protoxerus aubinnii	Slender-Tailed Squirrel (E)		DD
<b>Birds</b>			
Agelastes Meleagrides	White-Breasted Guineafowl (E)		VU
Bathmocercus Cerviniventris	Black-Capped Rufous Warbler (E)		NT
Bleda Eximius	Green-Tailed Bristlebill (E)		VU
Bubo Shelleyi	Shelley's Eagle-Owl (E)		NT
Bycanistes Cylindricus	Brown-Cheeked Hornbill (E)		NT
Campephaga Lobata	Western Wattled Cuckoo-Shrike (E)		VU
Ceratogymna Elata	Yellow-Casqued Hornbill (E)		NT
Criniger Olivaceus	Yellow-Throated Olive Greenbul (E)		VU
Illadopsis Rufescens	Rufous-Winged Illadopsis (E)		NT
Lamprotornis Cupreocauda	Copper-Tailed Glossy-Starling (E)		NT
Malaconotus Lagdeni	Lagden's Bush-Shrike (E)		NT
Melignomon Eisentrauti	Yellow-Footed Honeyguide (E)		DD
Picathartes Gymnocephalus	White-Necked Picathartes (E)		VU
Scotopelia Ussheri	Rufous Fishing-Owl (E)		EN

Source: IUCN

## Annex 4 National Wildlife Conservation Regulations

### 1. Wild Animals Preservation Act, 1961, Act43

2. Wildlife Conservation Regulation, 1971, LI 685
3. Wildlife Reserves Regulation, 1971, LI 710
4. Wildlife Reserves (Amendment) Regulations, 1975, LI 1022
5. Wildlife Reserves (Amendment) (Declaration of Game Reserves) Regulations, 1976, LI 1085
6. Wildlife Reserves (Amendment) Regulations, 1977, LI 1105
7. Wildlife Reserves (Amendment) Regulations, 1983, LI 1283
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11. Wildlife Reserves (Declaration of Game Reserves (Amendment) Regulations, 1991, LI 1525
12. Wetlands Management (RAMSAR Sites) Regulations, 1999, LI 1659

## **Annex 5 National Forest Conservation Regulation**

1. Timber Resources Management Act, 1997, Act 547
2. L.I. 1649- Timber Resources Management Regulation, 1998
3. Timber Resources Management Act 617 (Amendment) Act, 2002
4. Trees and Timber Amendment Act, Act 493, 1994
5. Forest Plantation Development Fund, Act 583, 2000
6. Forest Plantation Development Fund (Amendment), Act 623, 2002
7. Forest Protection Amendment Act, Act 624, 2002

## **Appendix 6 The Six Types of High Conservation Value**

HCV1. Forest areas containing globally, regionally significant

Concentrations of biodiversity values (e.g. endemism, endangered species, refugia)

For example, the presence of several globally threatened bird species within a Ghanaian montane forest e.g Atewa FR

HCV2. Forest areas containing globally, regionally or nationally

Significant large landscape level forests, contained within, or containing the management unit, where viable populations of most if not all naturally occurring species exist in natural patterns of distribution and abundance.

For example, a large tract of lowland wet evergreen or moist semi deciduous forest with healthy populations of elephants, different types of antelopes, different species of rare butterflies, birds in natural patterns of distribution and abundance

HCV3. Forest areas that are in or contain rare, threatened or endangered ecosystems.

For example, patches of a regionally rare type of freshwater swamp forest in Ghana.

HCV4. Forest areas that provide basic services of nature in critical situations (e.g. watershed protection, erosion control)

For example, forest on steep slopes, hill sanctuaries and areas protecting heading waters e.g. Afram Headwaters FR.

HCV5. Forest areas fundamental to meeting basic needs of local communities (e.g. subsistence, health)

For example, key hunting or foraging areas for communities living at subsistence level in a typical forest reserve area in Ghana.

HCV6. Forest areas critical to local communities' traditional cultural Identity (areas of cultural, ecological, economic or religious Significance identified in cooperation with such local communities).

For example, sacred burial grounds within a forest management Area in Ghana.